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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,448	03/19/2004	Lakhi N. Goenka	10541-1942	7284

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EXAMINER

PHILLIPS, FORREST M

ART UNIT PAPER NUMBER

2837

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/804,448

Applicant(s)

GOENKA ET AL.

Examiner

Forrest M. Phillips

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/19/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Dual chamber resonator with linear moveable member to vary chamber geometry.

Claim Objections

Claim 9 recites the limitation "system" in the first line. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains: Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 360022021 in view of Japanese patent 403107522A in view of Field et al (US5475189).

With respect to claim 1 Japanese patent '021 discloses resonator for attenuating pressure pulsations received through an air passage, the resonator comprising a housing (A and B in figure 3) defining a resonator chamber (17 and 18 in figure 3); a movable member (21 in figure 3) located within the resonator chamber and cooperating

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with the housing to divide the resonator chamber into first (17 in figure 3) and second (18 in figure 3) volumes; a first port (15 in figure 3) coupling the first volume with the air passage; a second port (16 in figure 3) coupling the second volume with the air passage and an actuator coupled to the moveable member (22 not shown but described in abstract).

The Japanese patent '021 does not disclose a first valve located within the first port to selectively connect the first volume with the air passage; a second valve located within the second port to selectively connect the second volume with the air passage; and an actuator coupled to the movable member and configured to move the moveable member thereby changing the first and second volume.

The Japanese patent '522 discloses a first valve (13 in figure 1) within a first port (10 in figure 1) to selectively connect the first volume with the air passage; a second valve (14 in figure 3) located within a second port (11 in figure 1) to selectively connect the second volume with the air passage.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the valves of the Japanese patent '522 with the resonator of the Japanese patent '021.

The motivation for doing so would have been to provide a degree of tenability to the resonator structure.

Filed discloses an actuator (50 in figure) coupled to a moveable member (30 in figure) and configured to move the moveable member thereby changing the first and second volume.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the actuator moving the moveable member of field with the resonator structure of the Japanese patent '021 to provide a condition responsive resonator wherein the lengths are adjusted to tune the two chambers (column 2 lines 38-49).

With respect to claims 2-4 The Japanese patent '522 discloses the need for decreased volume, as engine rpm increases, and the use of valves to control the air entering a resonating chamber and opening the valves in sequential order to have the resonator volumes be in tune with the airflow rate as determined by the engine rpm (abstract).

Field discloses moving the moveable member to alter the size of a resonant chamber based on the frequency to be attenuated (column 3 lines 41-45).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of the Japanese patent '522 and field in order to have the resonant chambers of the Japanese patent '021 be tuned to the airflow.

With respect to claim 5 Field further discloses wherein the actuator (50 in figure) is configured to move the member thereby decreasing a resonator chamber volume.

The Japanese patent '522 teaches the need for a reduced volume in a resonator as engine rpm increases and utilizing valves to determine which resonant chamber is utilized.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of field having resonant chambers with variable volumes dependent upon frequency of pressure pulsations to be attenuated, with the

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teachings of the Japanese patent '522 to open and close valves to determine what size of resonant chamber is being used and that the higher an engine rpm the smaller the resonant chamber with the resonant chamber structure of the Japanese patent '021.

The motivation for doing so would have been to allow the resonant chambers to be tuned according to the level of airflow, which is engine rpm dependent.

With respect to claims 6 and 7 the Japanese patent '522 discloses wherein the valves are solenoids.

With respect to claim 8 Field discloses wherein the actuator (50 in figure) is an electric motor.

With respect to claim 9 the Japanese patent '522 discloses wherein the first (13 in figure 1) and second (14 in figure 1) solenoid valves are independently controllable to attenuate multiple frequencies (see figure 1, lines to controller are independent of one another).

With respect to claim 10 the Japanese patent '021 discloses a resonator for attenuating pressure pulsations received through an air passage, the resonator comprising:

A housing (A and B in figure 3) defining a resonator chamber (17 and 18 in figure 3) a movable member (21 in figure 3) located within the resonator chamber and cooperating with the housing to divide the resonator chamber into first (17 in figure 3) and second (18 in figure 3) volumes; a first port (15 in figure 3) coupling the first volume with the air passage; a second port (16 in figure 3) coupling the second volume with the air passage.

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The Japanese patent '522 discloses a first valve (13 in figure 1) located within a first port to selectively connect the first volume with the air passage; a second valve (14 in figure 1) located within a second port to selectively connect the second volume with the air passage; a controller (16 in figure 1) in communications with the first valve and the second valve to selectively activate the first and second valve.

~~Filed~~^{Field} discloses an actuator (50 in figure) coupled to a movable member (30 in figure) and configured to move the moveable member thereby changing a first and second volume; and a controller (100 in figure) being configured to manipulate the actuator to position the moveable member.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Filed and the Japanese patent '522 with the resonator of the Japanese patent '021 to have a controller manipulate valves and the moveable member in order to provide a highly tune-able resonant structure.

With respect to claim 11 the Japanese patent '522 teaches the need to have a decreased volume as engine rpm increases.

Field teaches having a moveable member changing the volume of resonators as the frequency of pressure pulsations to be attenuated changes.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of the Japanese patent '522 that a smaller resonant chamber is needed as engine rpm increases, and the teachings of field to alter resonant chamber size using a moveable member with the resonator of the Japanese patent '021 to provide a highly tune-able resonator.

With respect to claim 12 the Japanese patent '522 discloses wherein the controller is configured to open the second valve corresponding to the shift in the rpm of the engine (abstract).

With respect to claim 13 the Japanese patent '522 discloses wherein the controller is configured to close the first valve corresponding to the shift in the rpm of the engine (abstract).

With respect to claim 14 field discloses wherein the controller is configured to drive the actuator moving the moveable member thereby decreasing the second volume corresponding to a change in frequency of pressure pulsations to be attenuated (column 3 lines 41-45).

The Japanese patent '522 teaches that as engine rpm increases the frequency of pressure pulsations to be attenuated increases, necessitating a smaller resonant chamber (abstract).

With respect to claims 15 and 16 the Japanese patent '522 discloses wherein the valves are solenoids (abstract).

With respect to claim 17 Field discloses wherein the actuator (50 in figure) is an electric motor.

With respect to claim 18 the Japanese patent '522 discloses wherein the controller (16 in figure 1) is configured to independently control the first and second valves to attenuate multiple frequencies (figure 1 the lines connecting the controller to the valves are independent of one another).

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With respect to claim 19 The Japanese patent '021 discloses a resonator for attenuating pressure pulsations received through an air passage, the resonator comprising: a first adjustable volume (17 in figure 3) defined in part by a housing (A in figure 3); a second adjustable volume (18 in figure 3) defined in part by a housing (B in figure 3); a first port (15 in figure 3) communicating the first volume with the air passage; and a second port (16 in figure 3) communicating the second volume with the air passage.

The Japanese patent '522 discloses a first valve (13 in figure 1) for selectively opening and closing a first port; a second valve (14 in figure 1) for selectively opening and closing a second port; and that the resonator volume decreases as engine rpm increases and the resonator volume increases as engine rpm decreases.

~~Field~~^{Field} discloses a first and second volume being adjustable by an actuator and wherein the first and second volume vary according to the frequency of pressure pulsations to be attenuated (column 3 lines 41-45).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of field and the Japanese patent '522 to have valves and an actuator moving a moveable member being used to tune the resonator of the Japanese patent '021.

With respect to claims 20 and 24 the Japanese patent '522 discloses the valves being opened independently of one another (abstract).

With respect to claim 21 ~~Field~~^{Field} discloses wherein the first and second volumes are adjustable by a common actuator (50 in figure 1).

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With respect to claims 22 and 23 the Japanese patent '522 discloses wherein the valves are solenoids (abstract).

With respect to claim 25 the Japanese patent '522 discloses wherein the valves are independently controllable (figure 1 the lines connecting the controller to the valves are independent of one another).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bloomer (Us6422192); and Brackett et al. (US5377629).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Forrest M. Phillips whose telephone number is 5712729020. The examiner can normally be reached on Monday through Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 5712721988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FP


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